

THE NORTH AMERICAN SPECIES OF NEMADUS
THOM., WITH DESCRIPTIONS OF NEW SPECIES
(COLEOPTERA, SILPHIDÆ)*

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The genus *Nemadus*, erected in 1859 by C. G. Thomson for a small number of species of the silphid tribe Catopini, seems not to have been looked upon with favor by his contemporaries, nor was it accepted by Horn in his Synopsis of the North American Silphidæ in 1880. Horn was familiar with Thomson's work and in general regarded it highly, but evidently did not consider the characters on which *Nemadus* was founded as of more than group value within the genus *Ptomaphagus*. *Nemadus* however is given generic recognition in late European Check Lists and is used by Dr. H. M. Hatch in his recent paper—"Studies on the Leptodiridæ (Catopidæ)," (Journ. N. Y. Ent. Soc., Mar.-Jun., 1933). In this paper, *parasitus* Lec., *pusio* Lec., and *horni* Hatch n. sp. (previously confused with *pusio*) are referred to *Nemadus*, based on the following characters.

Pronotum not transversely strigose; apex of hind tibia with rather long unequal spinules; basal joint of middle tarsus of male slightly dilated and spongy pubescent beneath.

Long before his death in 1912, my lamented friend Frederick Blanchard, of Tyngsboro, Mass., became greatly interested in the collection and study of his local species of *Ptomaphagus*. I quote the following from his note book under date May 27, 1894.

"Besides the very common *parasitus*, occurring abundantly with a black ant (*Formica subsericea* Say) under stones, and the

* A short time before the present paper was prepared and submitted for publication, there appeared in the Memoirs du Museum National D'Histoire Natural (Paris, 1936), a Monograph of the Catopidæ by Dr. R. Jeannel. This work has only recently come to my attention and I have not as yet been able to determine whether any synonymy is involved.

very rare *brachyderus* which lives with *Camponotus pictus* in pine logs and stumps, there are three other species which seem to be more or less common.

“1. With *Formica exsectoides*, the mound building ant, there is a rather large species at once known by the obliquely narrowed elytra and the more slender antennal club. 2. With *Formica integra*, an ant much like *exsectoides* but rather more robust, not mound building, discharging a tiny stream of formic acid when disturbed, occurs a *Ptomaphagus* with sides of elytra broadly rounded as in *parasitus*. This species is larger than *parasitus*, with a broader thorax, the disk similarly clouded, both sexes shining. 3. With *Camponotus pictus* and *C. pennsylvanicus* occurs a species rather larger and broader than *parasitus*, easily known by the prothorax always without fuscous cloud, the strigae of the elytra finer and closer, pubescence thin and fine, male shining, general color more castaneous or reddish brown than in *parasitus*.”

These three species all agree with *parasitus* in those characters which indicate the genus *Nemadus*, and in my opinion all are valid species. Examples of all these were included in a large lot of more than one hundred specimens sent by Mr. C. A. Frost to Dr. Hatch, who however failed to differentiate them from *parasitus*.

The following tabular synopsis is offered for the separation of the six species here recognized. The descriptions of the new species are quite brief, embodying little more than those characters which are of diagnostic value.

Types of the new species are in the writer's collection. Paratypes of all are in the Blanchard collection.

TABLE OF SPECIES

1. Elytra broadly rounded on the sides, at most only moderately attenuate posteriorly; pronotum more or less clouded with fuscous (except <i>pusio</i>)	2
Elytra strongly attenuate, the sides less arcuate	5
2. Form rather narrow and more evenly oval, widest at about the middle of the length; average size somewhat smaller; eighth antennal joint less than half as long as the ninth and at least twice as wide as long	3
Form a little broader and more ovate, the point of maximum width a little before the middle of the length, the elytra moderately attenuate	

- though with rounded sides; eighth antennal joint much less disk like, always less than twice as wide as long, and usually nearly or quite one-half the length of the ninth joint4
3. Both sexes with alutaceous sculpture between the elytral strigæ; elytral strigæ less oblique, nearly transverse. California; British Columbia *pusio* Lec.
Male without, female with alutaceous sculpture between the elytral strigæ (Mass. to Mich., Colo. and Fla.) *horni* Hatch
4. Elytra shining in the male, alutaceous and duller in the female; size smaller but averaging a little larger than in the two preceding species *parasitus* Lec.
Elytra in both sexes shining and without alutaceous sculpture; size distinctly larger *integer* n. sp.
5. Antennal club very slender, joints 7, 9 and 10 conspicuously longer than wide; pronotum always more or less clouded with fuscous. *gracilicornis* n. sp.
Antennal club less slender, joints 7 and 9 little if any longer than wide, 10 as wide or wider than long; pronotum never with dorsal cloud *obliquus* n. sp.

Nemadus pusio Lec.

Of this small species I have seen only the type in the Le Conte collection. It is a female, 1.6 mm. in length, reddish brown in color the head darker, outer four joints of antennal club piceous, the terminal joint paler at tip. It was taken at Point Reyes, on the coast a short distance north of San Francisco, California. Other recorded localities range from Los Gatos in the Santa Cruz Mts. south of San Francisco (Hatch) to Vancouver, B. C. (Horn). It is our only known Pacific Coast species.

Nemadus horni Hatch

This name is given by Hatch to the specimens occurring in the Eastern States, which hitherto have been referred to *pusio*. These differ from *pusio* in having the pronotum more or less piceous, the elytral strigæ slightly more oblique, and with alutaceous sculpture between the strigæ only in the female. In the twenty-three examples which I have examined the antennæ are sometimes unicolorous but more often with darker club, in which case the terminal joint is more or less pale. In length they scarcely vary from 1.75 or 1.85 mm. Hatch gives 2.2 mm. as the upper limit, which is so extraordinary as to suggest the possibility of error. This species is widely dispersed, ranging from

New England to Alabama and west to the Mississippi River. The type locality is Framingham, Mass.

Nemadus parasitus Lec.

The type of this common species is a male, 1.9 mm. long, from "N. Y." The LeConte series contains three other N. Y. specimens, two from "D. C." and two without locality labels. The average size is perceptibly greater than in the two preceding species but rather less than in the three which follow. The color varies from a yellowish brown to castaneous, the pronotum more or less clouded with fuscous. The form is a trifle broader than in *pusio* and *horni*, the elytra are broadly arcuate on the sides and only moderately attenuate.

In his remarks under this species Hatch says that it closely resembles *Dissochaetus brachyderus* Lec. This is equivalent to saying that the elytra are strongly attenuate behind, which is never the case in the true *parasitus*, and shows conclusively that the author confused therewith two of the species which follow, viz. *gracilicornis* n. sp. and *obliquus* n. sp.

Parasitus is more widely dispersed than any other of our species, occurring, if the records can be trusted, from Quebec to Manitoba and Colorado and south to Virginia and Texas.

Nemadus integer new species

Strikingly similar to *parasitus* but generally of larger size, as is quite evident when series are compared. The color is reddish brown, the disk of the pronotum with fuscous area of variable extent; antennal club not infuscate, 8th joint about one-half the length of the 9th and much less than twice as wide as long. Elytra broadly rounded on the side and only moderately attenuate posteriorly, as in *parasitus*; surface polished and without micro-sculpture between the strigæ in either sex. Length 2.1 to 2.25 mm.

More than thirty examples have been examined, mostly in the Blanchard collection. The type is a female bearing label "Lowell Ms." but was undoubtedly taken in Tyngsboro, as were all the Blanchard specimens; a single female from Framingham, Mass., is in my collection.

The absence of alutaceous sculpture between the strigæ of the elytra in both sexes is the most important diagnostic character of this species as is indicated in the preliminary remarks.

Blanchard's specimens were always taken with a different ant from that with which *parasitus* occurred.

***Nemadus gracilicornis* new species**

Broader anteriorly than in *parasitus*, the elytra more strongly attenuate, the size distinctly larger. The color is reddish brown, the head piceous, the pronotal disk more or less broadly infuscate, antennal club not darker. The antennal club is more slender than usual, joints 7, 9 and 10 conspicuously elongate, these being at most but slightly longer than wide in *parasitus*; 8th joint about half the length of the 9th and scarcely one-half wider than long. Elytra widest near the base, the sides thence but little arcuate and strongly converging to apex; interstrigal surface smooth or very nearly so in the male, distinctly minutely alutaceous and less shining in the female. Length 2.1 to 2.3 mm.

Some forty specimens of this species have been examined. They bear labels—Massachusetts (Tyngsboro; Framingham; Natick); Connecticut (Cornwall); New Jersey (Ramsey); Manitoba (Aweme). The type is a male from Cornwall, Conn. (K. C. Chamberlain) and bears date "23, IV, 1922."

The more slender antennal club, fuscous pronotal area, and subtriangular elytra form a combination of characters which distinguish this species from all others in the genus. The elytra are nearly as strongly attenuate as in *brachyderus* but lack the lateral subapical sinuation present in that species.

***Nemadus obliquus* new species**

Broadly ovate, the sides of the elytra strongly convergent from near the base. Color uniformly reddish brown or castaneous, the pronotum never with any trace of discal cloud. Antennæ concolorous, 7th and 9th joints varying from nearly as long to slightly longer than wide, 8th about half the length of the 9th but a little variable, 10th rarely if ever as long as wide. Elytra strongly wedge shaped, about one-third longer than wide, sides very broadly arcuate; surface shining in the male, the interstrigæ not or scarcely visibly alutaceous, perceptibly alutaceous and duller in the female. Length 2.0 to 2.25 mm.

The size is a little larger than in *parasitus* but somewhat smaller than in *integer* or *gracilicornis*, and is proportionately broader than in either of them. The absence of pronotal cloud at once separates this species from all other normally colored eastern members of the genus, and the strongly cuneiform elytra distinguish it from all but *gracilicornis*, in which the antennal club is a little more slender with the 10th joint always longer than wide.

I have studied or passed in review more than forty specimens of this species, the larger number being in the Blanchard collection. The type is a female taken by myself at Tynngsboro, Massachusetts, VI-2-1925. Other localities represented are Dracut and Framingham, Mass.; Newark and Montclair, New Jersey; and Philadelphia, Pa. (Liebeck Coll.).

